

REMARKS

Claim Amendments

Claims 1-48 are canceled. Claims 49-85 are newly added. Applicants reserve their right to prosecute the cancelled subject matter in one or more divisional applications. Support for the new claims may be found throughout the specification and claims as originally filed.¹

Applicants have canceled claims 1-12, 25-32, and 35-48 so that the claims may be presented in a more logical ordering and format. Claims 13-24 and 33-34 were previously canceled. The newly canceled claims are presented, with some modifications, as new claims 49-85. For the Examiner's convenience, the following table shows the correspondence between the newly canceled claims and the newly presented claims:²

Previous Claim #	New Claim #	Previous Claims #	New Claim #	Previous Claims #	New Claim #	Previous Claims #	New Claim #
--	49	13	--	27	65	41	57
1	50	14	--	28	66	42	79
2	51	15	--	29	67	43	80
3	52	16	--	30	68	44	81
4	53	17	--	31	69	45	82
5	54	18	--	32	70	46	--
6	55	19	--	33	--	47	76
7	58	20	--	34	--	48	--
8	59	21	--	35	71	--	83
9	60	22	--	36	72	--	84
10	61	23	--	37	73	--	85
11	62	24	--	38	74		
--	77	25	63	39	75		
12	78	26	64	40	56		

¹ See, e.g., U.S. Pat. Pub. No. 2008/0022421, the publication of this application, at ¶¶ [0021], [0084], [0085], [0161], and [0162].

² New claims 49, 77, and 83-85 do not specifically correspond to any previously presented claims.

Interview Summary Under 37 C.F.R. § 1.133

On November 2, 2009, Applicants' representatives, Supervisory Examiner Anne Marie Grunberg, and Examiner Brent Page conducted an interview for this application and Application No. 10/591,540 ("the '540 application").

During the interview, the Examiners agreed that Kikuchi does not anticipate the instant claims, but instead, at most, raises an obviousness question.³ The Examiners also agreed that Kikuchi does not disclose the starch phenotypes of the protein activity of SEQ ID NO: 22133.⁴ Finally, the Examiners agreed that "the prior art [does] not select the claimed sequence on the basis of starch phenotype or with the knowledge of the res[ultant] protein activity."⁵

Applicants thank Examiners Grunberg and Page for conducting the interview and for the courtesies extended by the Examiners during the interview.

Rejections Under 35 U.S.C. § 102

Claims 1-7, 10-12, 25-32, 35-39, 41-43, 45-46, and 48 stand rejected under 35 U.S.C. § 102(c) as being anticipated by Kikuchi et al.⁶

As discussed above, the Examiners agreed that because Kikuchi does not reduce to practice a plant cell comprising SEQ ID NO: 22133, Kikuchi does not anticipate the claims.⁷ Accordingly, Applicants respectfully request that this rejection be withdrawn.

³ See Interview Summary for the instant application ("It was agreed that the pending reference listing over 20,000 sequences without a reduction to practice was an obviousness under 103(a)").

⁴ See Interview Summary for the '540 application ("It was also agreed that Kikuchi et al do not disclose the starch phenotypes of protein activity of the disclosed sequence, SEQ ID NO: 22133.").

⁵ Interview Summary for the instant application.

⁶ Office Action, p. 3.

⁷ See Interview Summary for the instant application ("It was agreed that the pending reference listing over 20,000 sequences without a reduction to practice was an obviousness under 103(a)").

Rejections Under 35 U.S.C. § 103

Claims 40, 44, and 47 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kikuchi et al.⁸

Applicants respectfully traverse.

Claims 40 and 44 (new claims 56 and 81)

New claims 56 and 81 are directed to a plant cell and a method of making a genetically modified plant, respectively, comprising at least one foreign nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO: 3, or the complementary sequence thereof.

Kikuchi does not suggest such a plant cell or methods. Kikuchi discloses 28,469 cDNA sequences.⁹ Kikuchi does not disclose that any of these sequences is involved in starch metabolism or has OK1 activity, nor does it disclose a foreign nucleic acid molecule that increases the expression of any of these sequences. Indeed, Kikuchi is completely silent with respect to the activity of SEQ ID NO: 22133.¹⁰ Kikuchi also fails to provide any guidance to one of skill in the art to (1) select SEQ ID NO: 22133 out of the 28,469 sequences; or (2) design or obtain a foreign nucleic acid molecule that increases the expression of SEQ ID NO: 22133. To be sure, Kikuchi does not suggest any preference for SEQ ID NO: 22133, or for increasing the expression of this sequence in a plant cell.

During the interview, the Examiners agreed with this characterization, stating that “the prior art did not select the claimed sequence on the basis of starch phenotype or with the knowledge of the res[ul]tant protein activity.”¹¹ The Examiners also stated that “Kikuchi et al do not disclose the starch phenotypes of protein activity of the disclosed sequence, SEQ ID NO: 22133.”¹² Because Kikuchi provides no teaching whatsoever linking the activity of SEQ ID NO: 22133 to starch metabolism or the activity of the OK1 protein, one of skill in the art would have had no reason to select this particular sequence—out of the nearly 30,000 sequences—for use in a plant cell or a

⁸ Office Action, p. 5.

⁹ See Kikuchi, ¶ [0011].

¹⁰ See Interview Summary of the ‘540 Application (“Kikuchi et al. do not disclose the starch phenotypes of protein activity of the disclosed sequence, SEQ ID NO: 22133”).

¹¹ Interview Summary of the instant application.

¹² Interview Summary of the ‘540 Application.

method of making a genetically modified plant as described in claims 56 and 81, respectively. Accordingly, Applicants respectfully request that these rejections be withdrawn.

Claim 47 (new claim 76)

New claim 76 is directed a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO: 3, or the complementary sequence thereof.

The Office Action agrees that Kikuchi does *not* teach SEQ ID NO: 3, but contends that “the sequence variance of only a single nucleotide difference constitutes an obvious sequence variant absent evidence of an unexpected result.”¹³

Applicants respectfully disagree.

First, the USPTO has not provided any reason, let alone evidence that varying a single nucleotide “constitutes an obvious sequence variant.” Indeed, Applicants are unaware of, nor has the USPTO provided, any teaching whatsoever in Kikuchi, or knowledge in the art, that would suggest to one of skill in the art to modify the sequence of SEQ ID NO: 22133 to arrive at claimed SEQ ID NO: 3. Second, SEQ ID NO: 3 comprises some 3,644 nucleotides. Any given nucleotide could be replaced by one of three nucleotides (*e.g.*, if position 3432 is a thymine residue (T), it could be replaced by A, C, or G). Accordingly, even if one of skill in the art were motivated to modify SEQ ID NO: 22133 (which they would not be), and even if only a single nucleotide were to be changed in SEQ ID NO: 22133, there are nearly *eleven thousand* possible sequences that could result from such a change ($3 * 3,644 = 10,932$). Even if one assumes that SEQ ID NO: 3 were one of these nearly 11,000 sequences, one of skill in the art would have no reason to select SEQ ID NO: 3 out of this vast array of sequences. Because one of skill in the art would have no reason to select SEQ ID NO: 2133, nor any reason to then modify SEQ ID NO: 22133 to arrive at SEQ ID NO: 3, Applicants respectfully submit that Kikuchi fails to render claim 76 obvious. Accordingly, Applicants request that this rejection be withdrawn.

¹³ Office Action, p. 5.

CONCLUSION

In view of the foregoing, Applicants respectfully request an indication of allowance of all claims.

If the Examiner has any questions relating to this response, or the application in general, he is respectfully requested to contact the undersigned so that prosecution of this application may be expedited.

Respectfully submitted,

HUNTON & WILLIAMS LLP

Dated: December 7, 2009

By: 

Robert M. Schulman
Registration No. 31,196

Alexander H. Spiegler
Registration No. 56,625

HUNTON & WILLIAMS LLP
Intellectual Property Department
1900 K Street, N.W., Suite 1200
Washington, DC 20006-1109
(202) 955-1500 (general telephone)
(202) 955-1899 (direct telephone)
(202) 778-2201 (facsimile)